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(56) Documents Cited

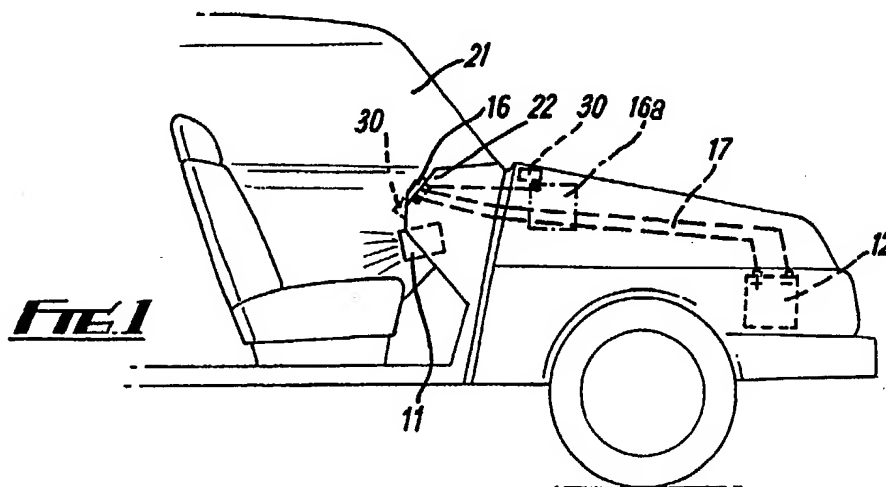
GB 2198261 A GB 2042290 A GB 1017644 A
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(58) Field of Search

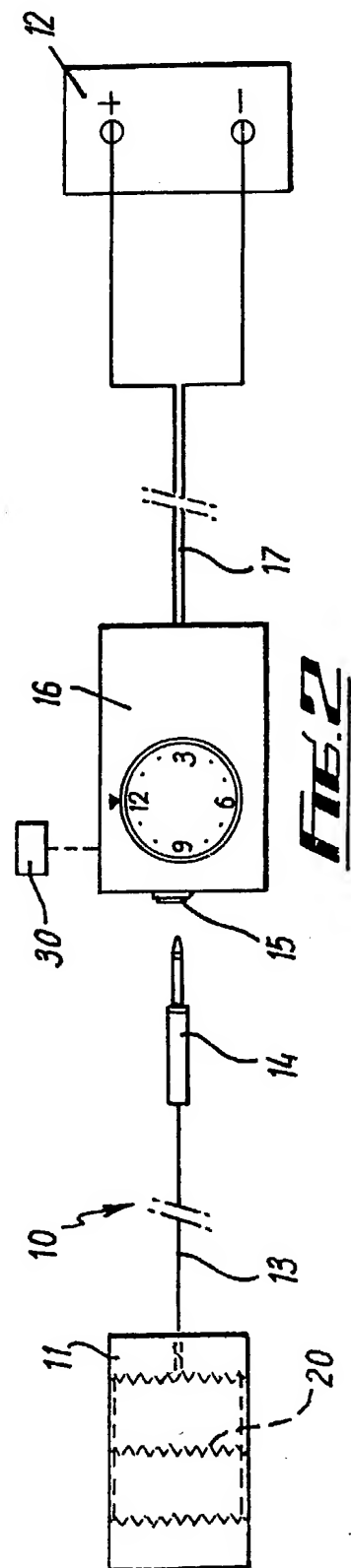
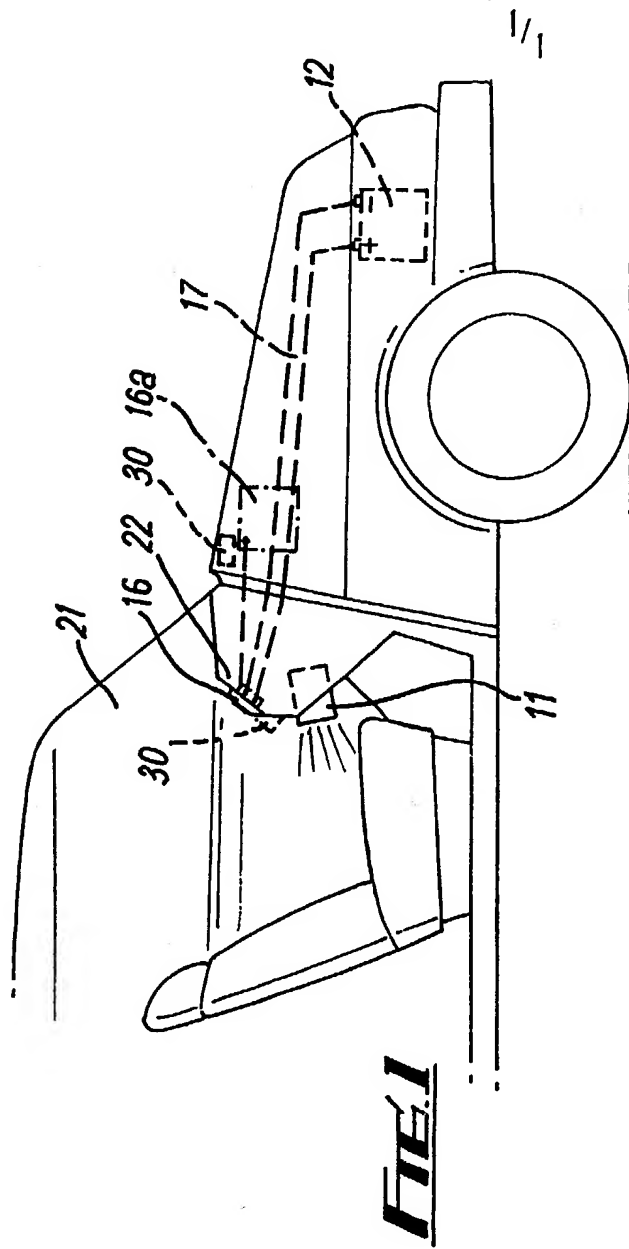
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ONLINE DATABASES : WPI

(54) Vehicle window heater

(57) A motor vehicle has an electric fan 11 connected via a timer 16 to battery 12. The timer 16 is set to energise the fan 11 at a predetermined time to heat air in the car to remove anticipated ice on windscreen and windows prior to operation of the vehicle. A temperature sensor 30 may prevent energising of the fan until the temperature, either inside or outside the vehicle, falls below a certain level.



GB 2 276 955 A



IMPROVEMENTS IN OR RELATING TO MOTOR VEHICLES

THIS INVENTION relates to motor vehicles.

In frosty weather, ice can be deposited on the exterior surfaces of the windows of a vehicle and this must be removed before the vehicle can be used safely. Sometimes only the windscreen and part of side windows are cleaned, leaving some obscured, which is not safe. Expensive and time-consuming deicing materials are often used.

According to this invention, a motor vehicle comprises a user compartment having window means, and time-controllable means for heating the window means.

The heating means may comprise an electric fan.

There may be a battery and timing means for establishing a connection between the battery and the heating means to energise the heating means. The heating means may be connectable with and disconnectable from the timing means.

There may be a temperature sensor responsive to temperature and connected such that the heating means is not energised unless the sensed temperature is less than a predetermined value.

The invention may be performed in various ways and one specific embodiment with possible modifications will now be described by way of example with reference to the accompanying drawings, in which:

5 Fig. 1 is a side view of part of a car; and
 Fig. 2 shows a circuit.

A device 10 for removing ice deposited or formed on windows of a vehicle e.g. a motor car or van or wagon, comprises an electric fan 11 arranged to be
10 supplied from the vehicle battery 12. The fan 11 is connected by electric conductors 13 to a jackplug 14 which can be inserted into and removed from a socket connector 15 forming part of a timer 16 in turn connected to electrical conductors 17 to the battery 12.

15 If a user anticipates that ice will be deposited whilst the vehicle is not being used, e.g. at night, he connects the plug and socket, and sets the timer 16 for the appropriate period. Thus if the user sets the timer 16 at 11p.m. and wishes to use the vehicle
20 again at 8.30a.m., he sets the timer for, say, 9 hours. Thus at 8a.m. the timer 16 will operate to establish an electrical connection between the battery and the fan to start the fan which includes an electric heater element 20. Hot air is thus discharged into the
25 interior 21 of the passenger compartment. This heats the windows and removes deposited ice so that when the

user wishes to use the vehicle at 8.30 a.m. he can do so. The fan 12 can be mounted on the dashboard 22 as can the timer 16; or the timer could be in the engine compartment as shown at 16a. A user can disconnect plug and socket when desired. The fan is energised normally for at least the period from being energised up to the time when it is desired to use the vehicle.

In a modification, a temperature or thermostat sensor, e.g. a frost-stat, is used to detect frost in the air and is operatively connected to the timer/heater so that the timer will not start the heater unless the temperature sensor detects a temperature of say 1°C or less. This will reduce the load on the battery.

The temperature sensor may sense the temperature inside or outside the user compartment.

Use of the device 10 reduces or avoids the need to use deicing material, or to run the engine in order to operate the conventional heater provided.

The period 9duration) of operation of the fan can be adjusted by adjustment of the timer.

If the windows have been appropriately warmed, then a user's breath will not freeze on the interior surfaces of the windows, which might interfere with use of the vehicle. When the engine has

warmed up, the conventional heater can be used.

As shown at 30, the frost-stat can be inside or outside the passenger compartment.

CLAIMS

1. A motor vehicle comprising a user compartment having window means, and time-controllable means for heating the window means.
2. A vehicle as claimed in Claim 1, in which the heating means comprise an electric fan.
3. A vehicle as claimed in Claim 1 or Claim 2, including a battery and timing means for establishing a connection between the battery and the heating means to energise the heating means.
4. A vehicle as claimed in Claim 3, in which the heating means is connectable with and disconnectable from the timing means.
5. A vehicle as claimed in any preceding claim, comprising a temperature sensor responsive to temperature and connected such that the heating means is not energised unless the sensed temperature is less than a predetermined value.
6. A vehicle as claimed in any preceding claim, including means for adjusting the period of operation of the heating means.
7. A motor vehicle substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The search report)

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Relevant Technical Fields

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(ii) Int Cl (Ed.5) B60S 1/54 & B60H 1/22 58

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ANDREW BARTLETT

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Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant following a search in respect of Claims :-
1-7

(ii) ONLINE DATABASES: W.P.I

Categories of documents

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|---|---|
| X: Document indicating lack of novelty or of inventive step. | P: Document published on or after the declared priority date but before the filing date of the present application. |
| Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. | E: Patent document published on or after, but with priority date earlier than, the filing date of the present application. |
| A: Document indicating technological background and/or state of the art. | &: Member of the same patent family; corresponding document. |

Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2198261 A (SCAN MARTIN BURTON) whole document especially page 5 line 22-26	1-7
X	GB 2042290 A (FRATELLI BORLETTI) see page 2 lines 45-75 in particular	1-4, 6
X	GB 1017644 (S H M & D TRANSPORT & ELECTRICITY BOARD) whole document	1, 2, 4 & 6
X	US 5115116 (REED) column 3 lines 6-26 and column 5 line 44 at sequence in particular	1, 2 4-6
X	US 4773588 (OKADA) whole document	1-4, 6
X	US 4293759 (HIGGINS) whole document especially page 1 lines 8-11	1, 2, 4 & 6

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).